

# KIC 008561231

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008561231-01	OBS	2346.01	28.685193	159.874342	689.2	5.835	18.8	20.2	0.84	5726	2.46	21.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008561231-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008561231-01

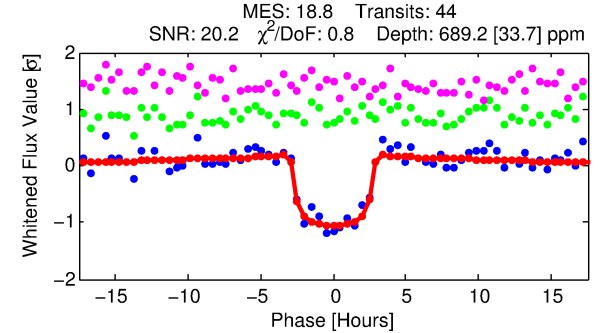
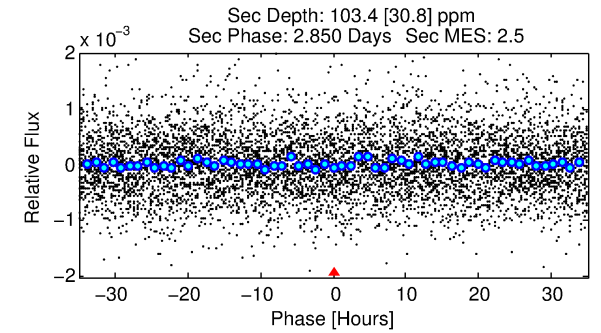
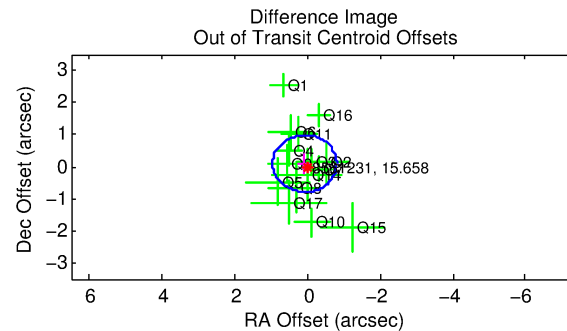
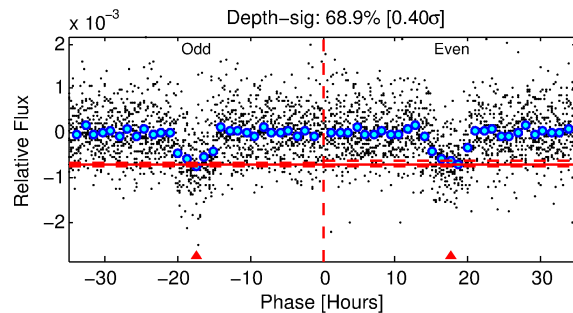
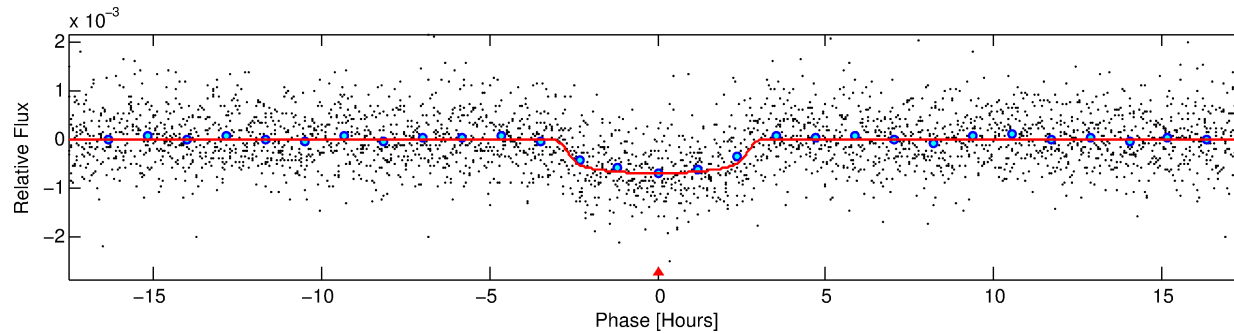
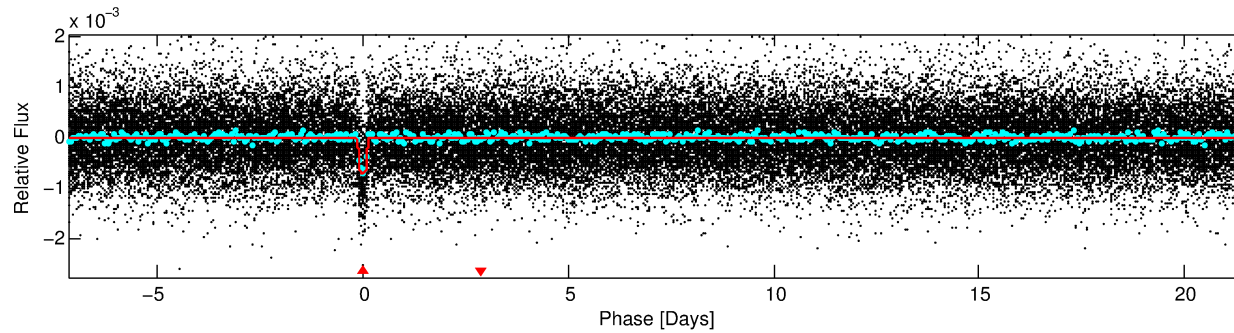
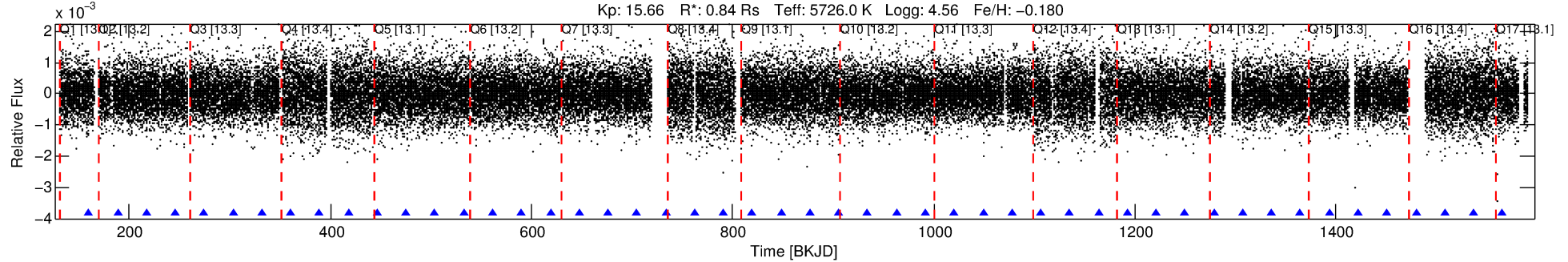
No Significant Match Found

# DV One-Page Summary

KIC: 8561231 Candidate: 1 of 1 Period: 28.685 d

KOI: K02346.01 Corr: 0.968

Kp: 15.66 R\*: 0.84 Rs Teff: 5726.0 K Logg: 4.56 Fe/H: -0.180



## DV Fit Results:

Period = 28.68519 [0.00017] d  
Epoch = 159.8743 [0.0049] BKJD  
Rp/R\* = 0.0269 [0.0043]  
a/R\* = 23.53 [16.59]  
b = 0.81 [0.30]  
Seff = 21.13 [6.66]  
Teq = 547 [43] K  
Rp = 2.46 [0.70] Re  
a = 0.1789 [0.0356] AU  
Ag = 301.21 [158.01] [1.90σ]  
Teffp = 3521 [398] K [7.42σ]

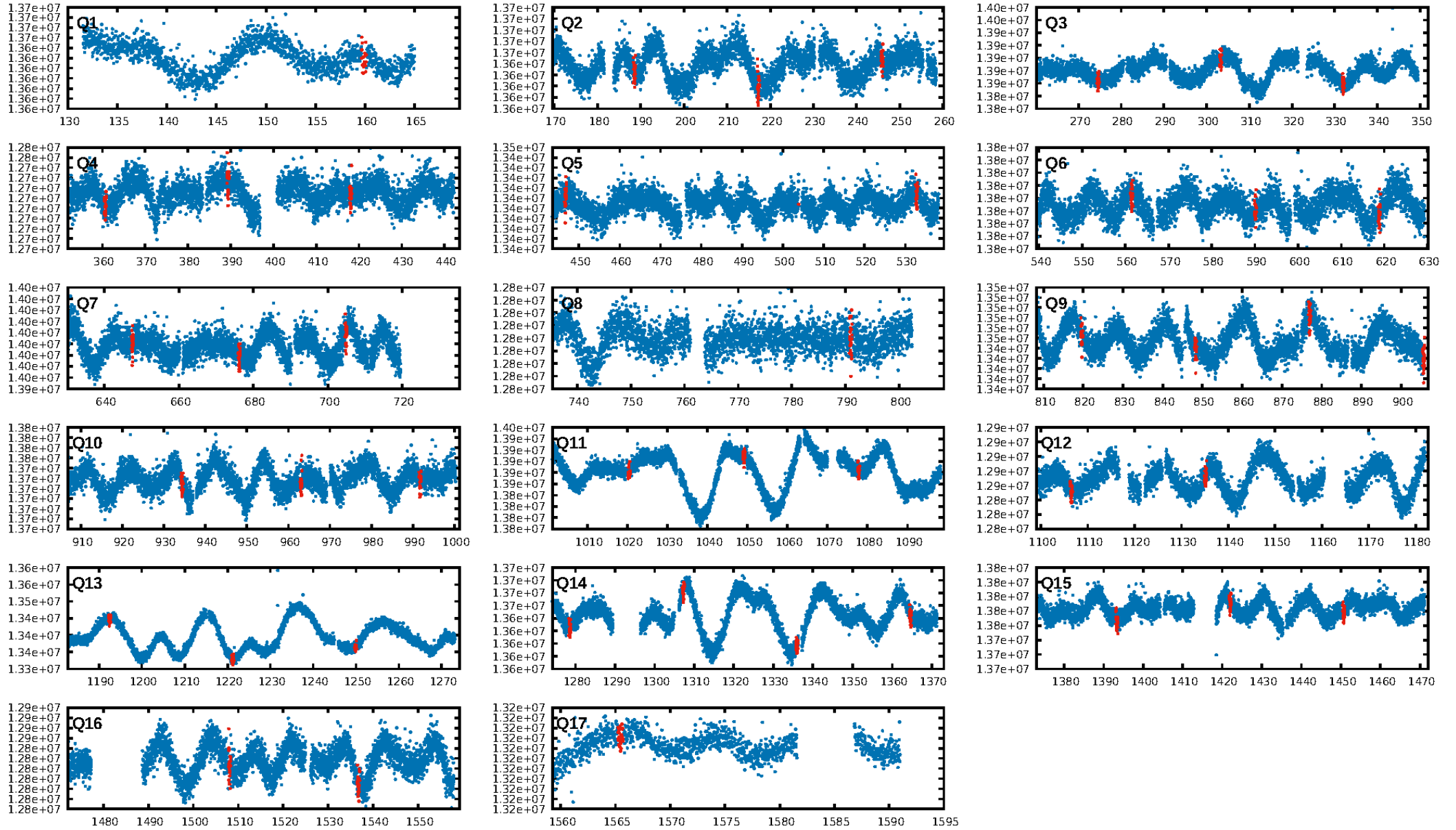
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.73e-75  
RollingBand-fgt: 1.00 [42/42]  
GhostDiagnostic-chr: 8.893  
Centroid-sig: 2.3%  
Centroid-so: 1.155 arcsec [1.88σ]  
OotOffset-rm: 0.119 arcsec [0.40σ]  
KicOffset-rm: 0.095 arcsec [0.33σ]  
OotOffset-st: 4/4/3/4 [15]  
KicOffset-st: 4/4/3/4 [15]  
DiffImageQuality-fgm: 0.87 [13/15]  
DiffImageOverlap-fno: 1.00 [17/17]

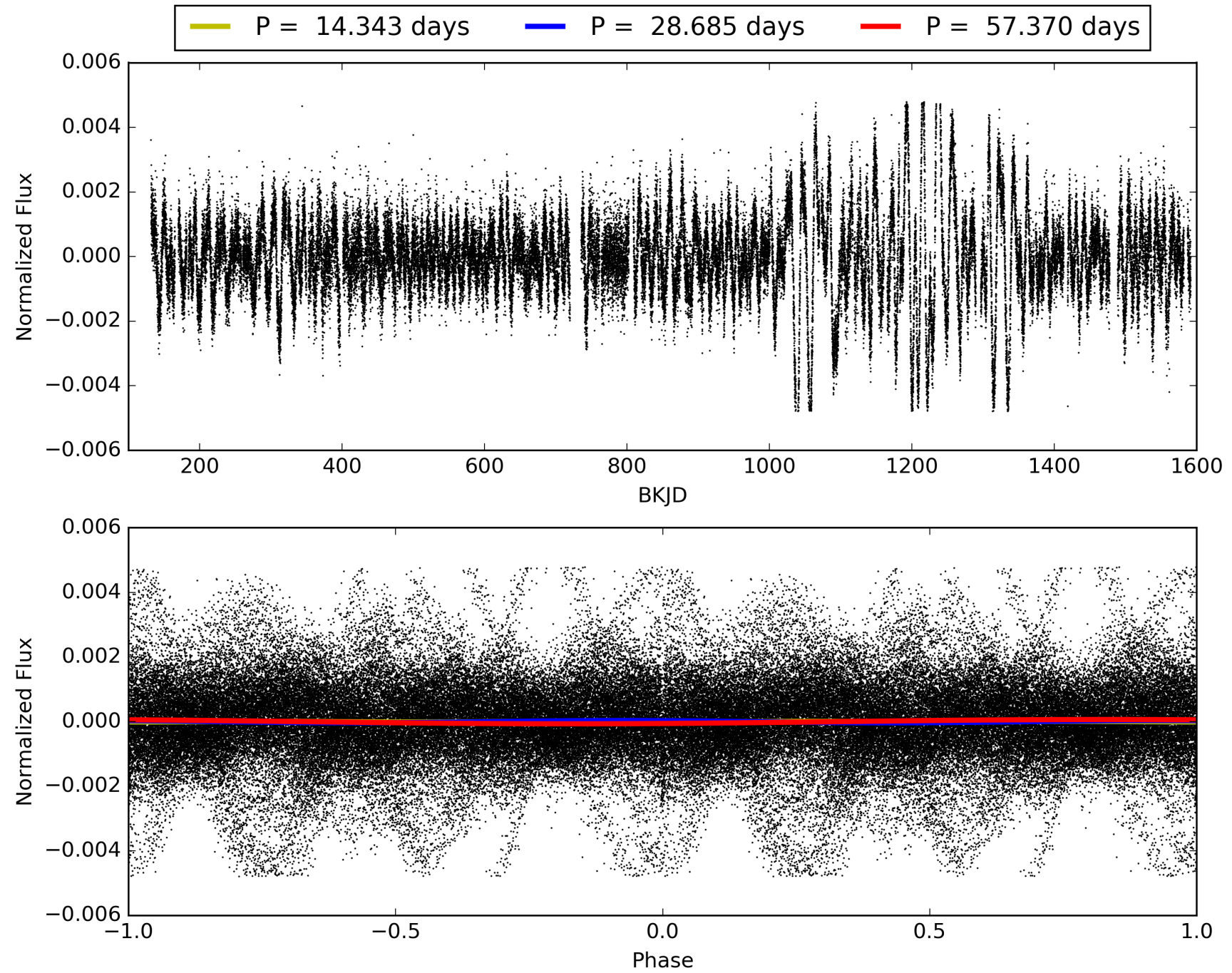
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:42:10 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008561231-01, PDC Light Curves

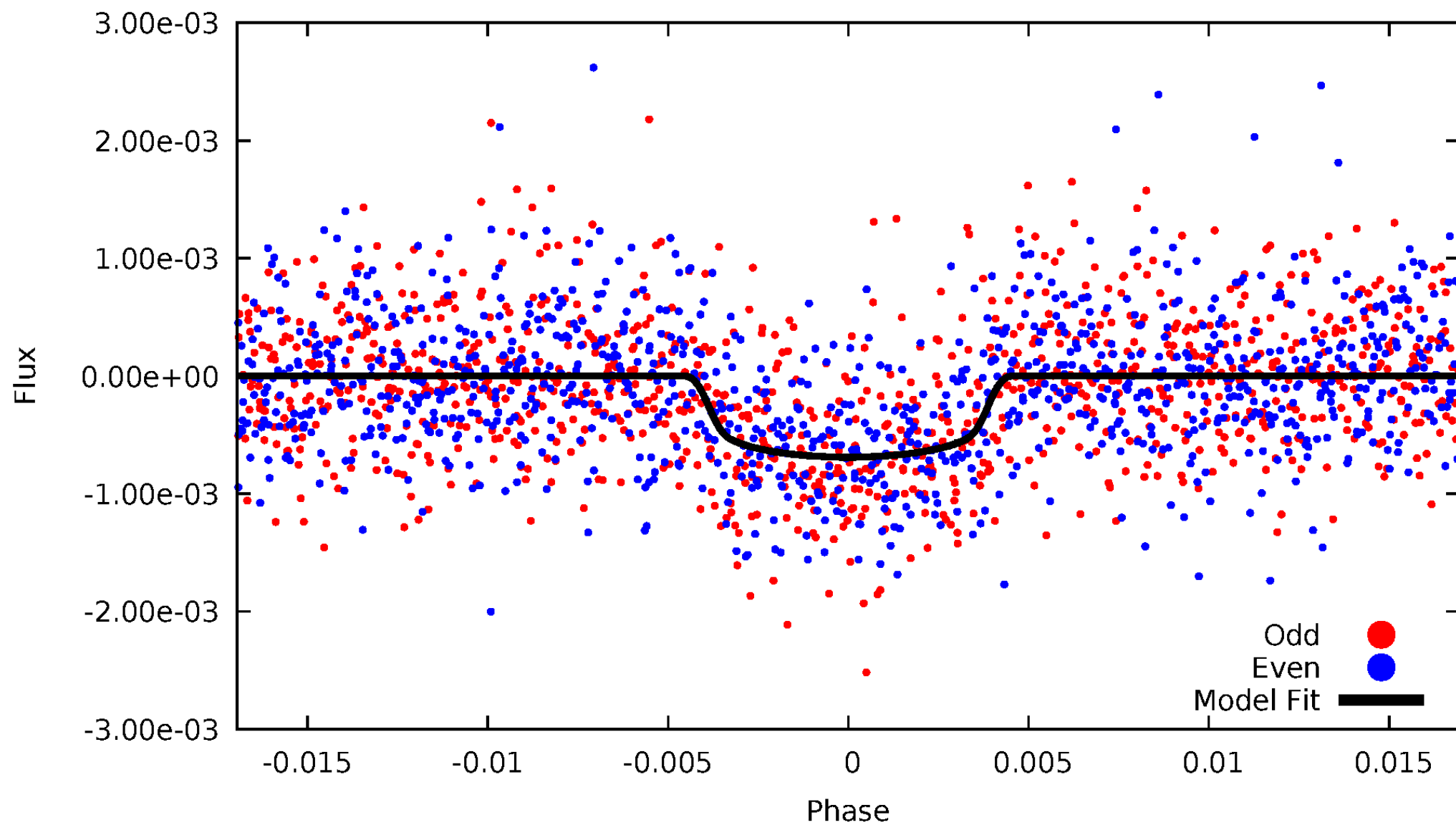


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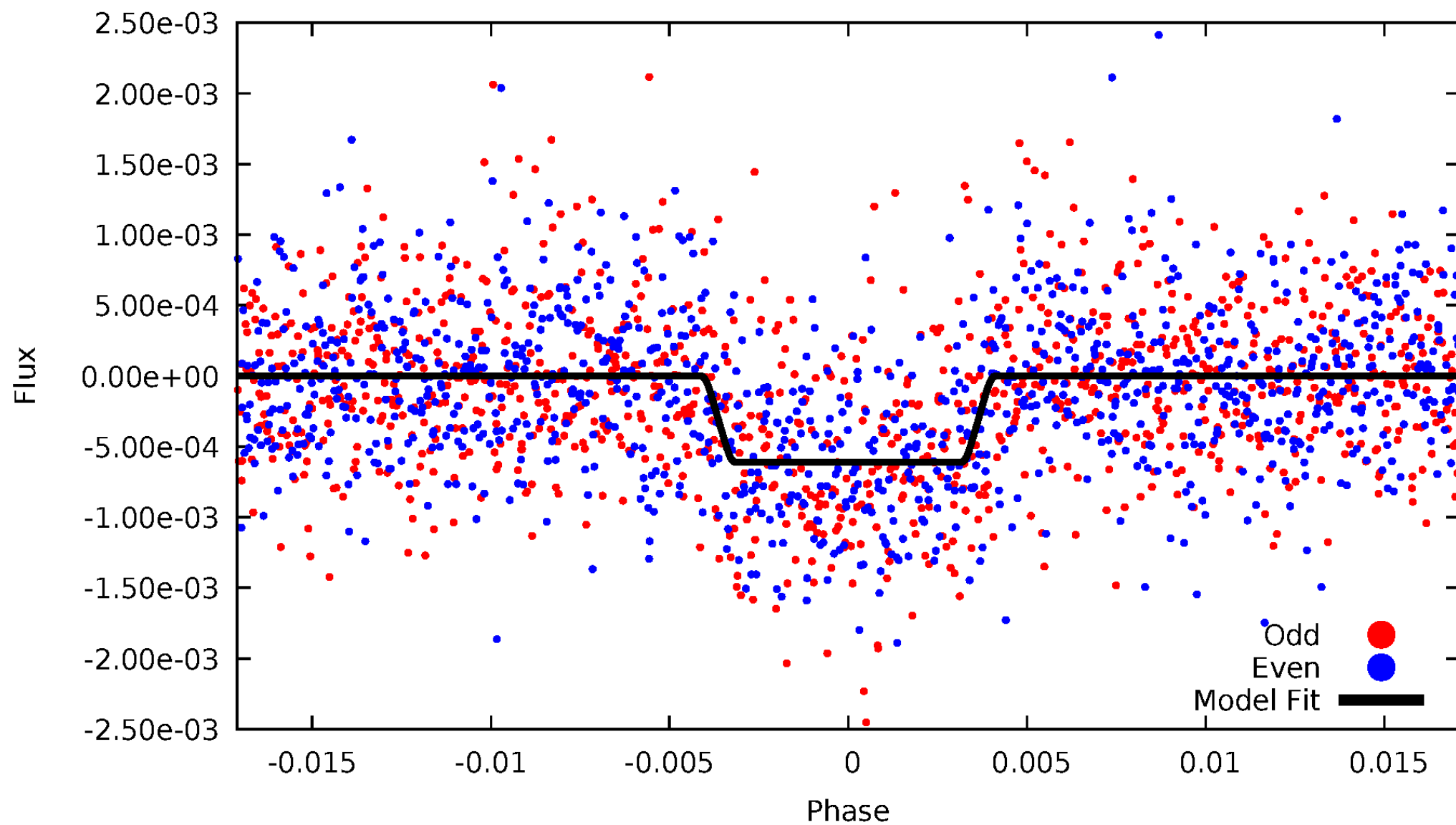
# DV Odd/Even

TCE 008561231-01



# ALT Odd/Even

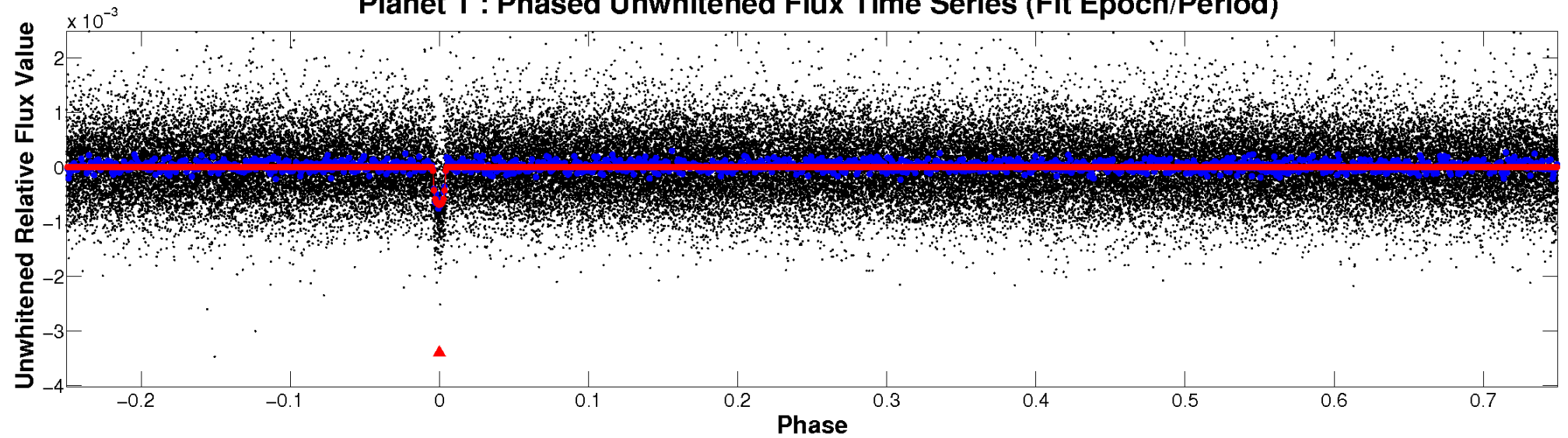
TCE 008561231-01



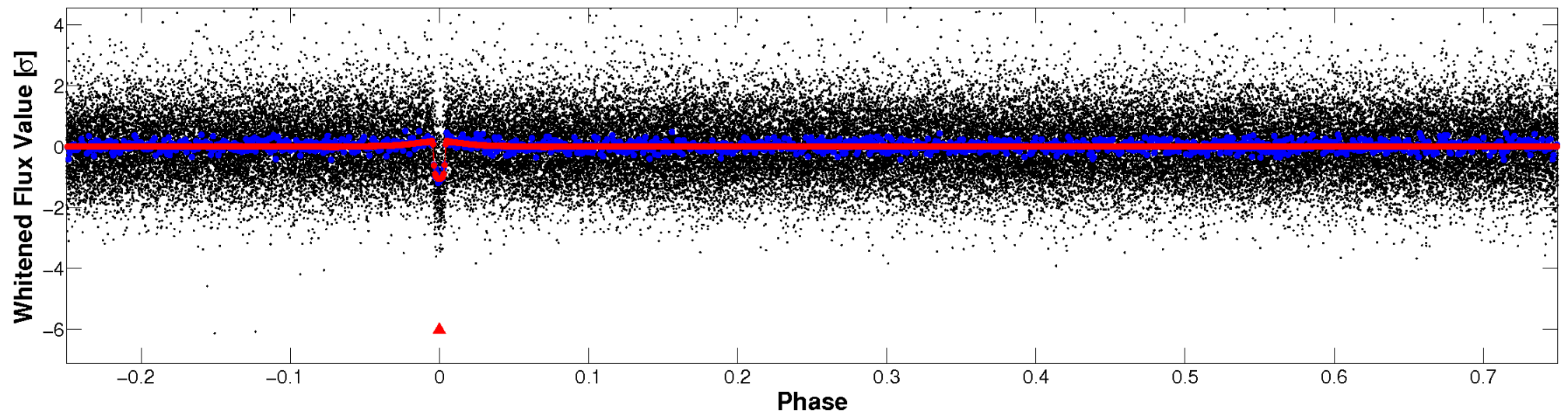


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

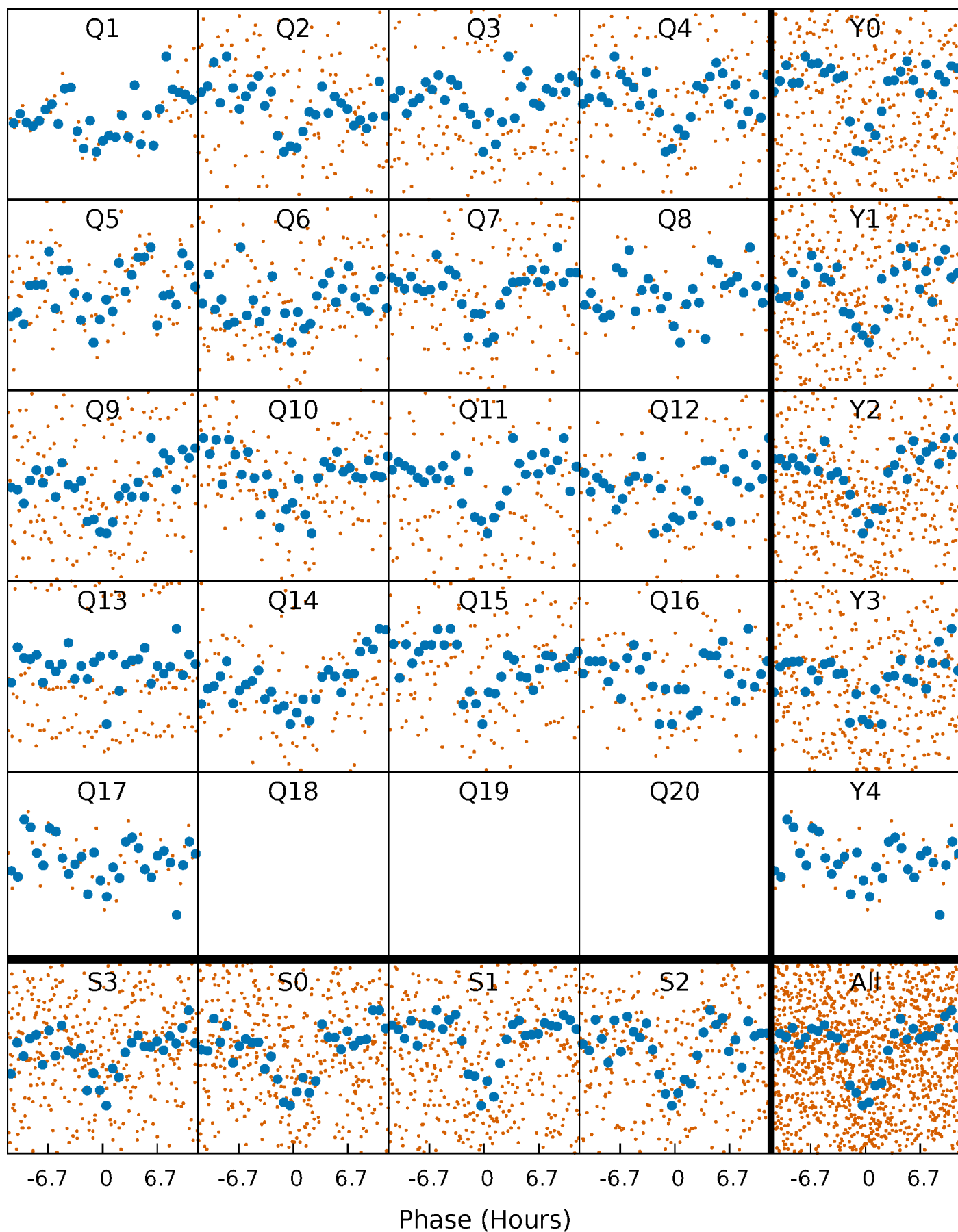


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

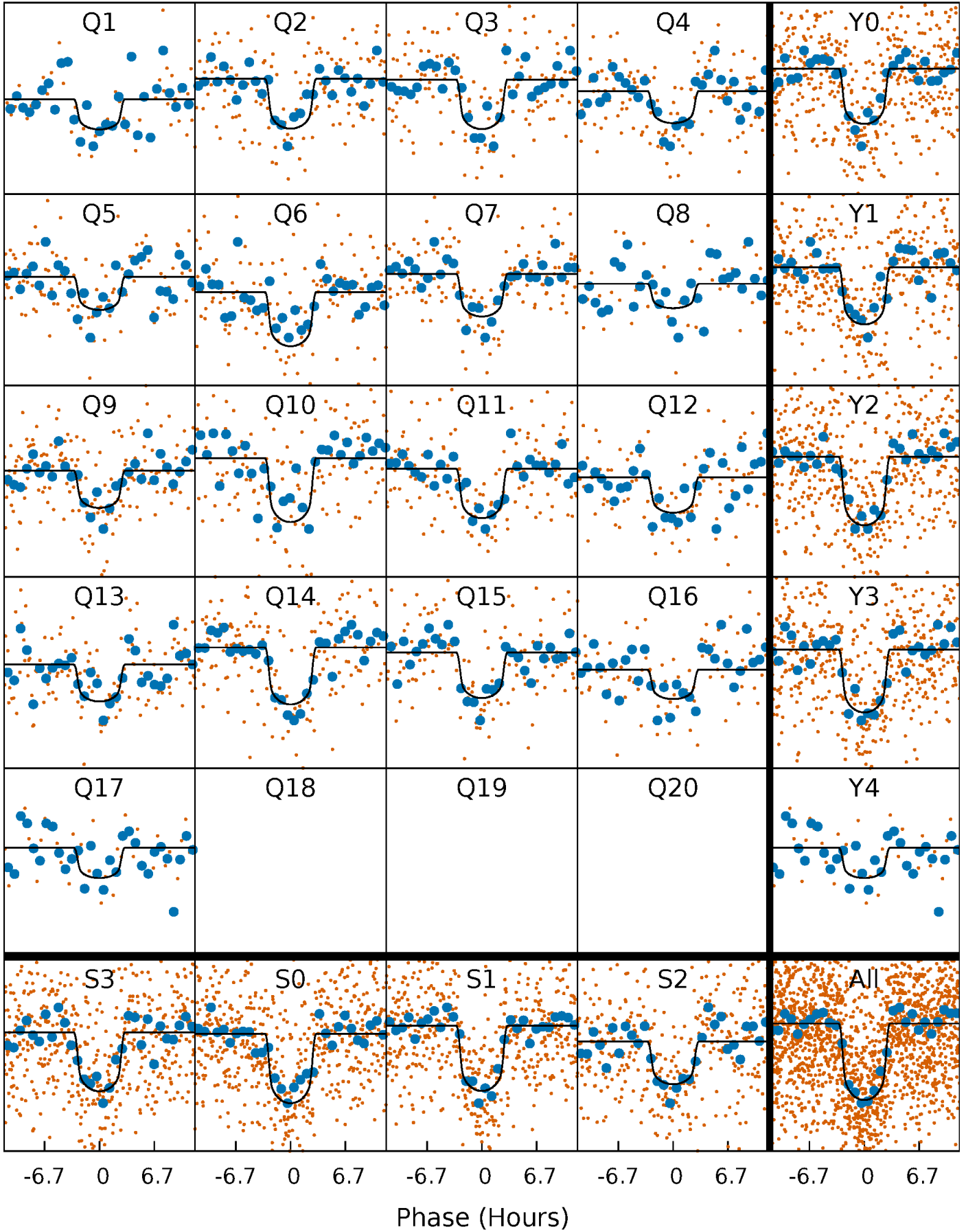
TCE 008561231-01 P= 28.685193 Days  $T_0=159.874342$  (BKJD)





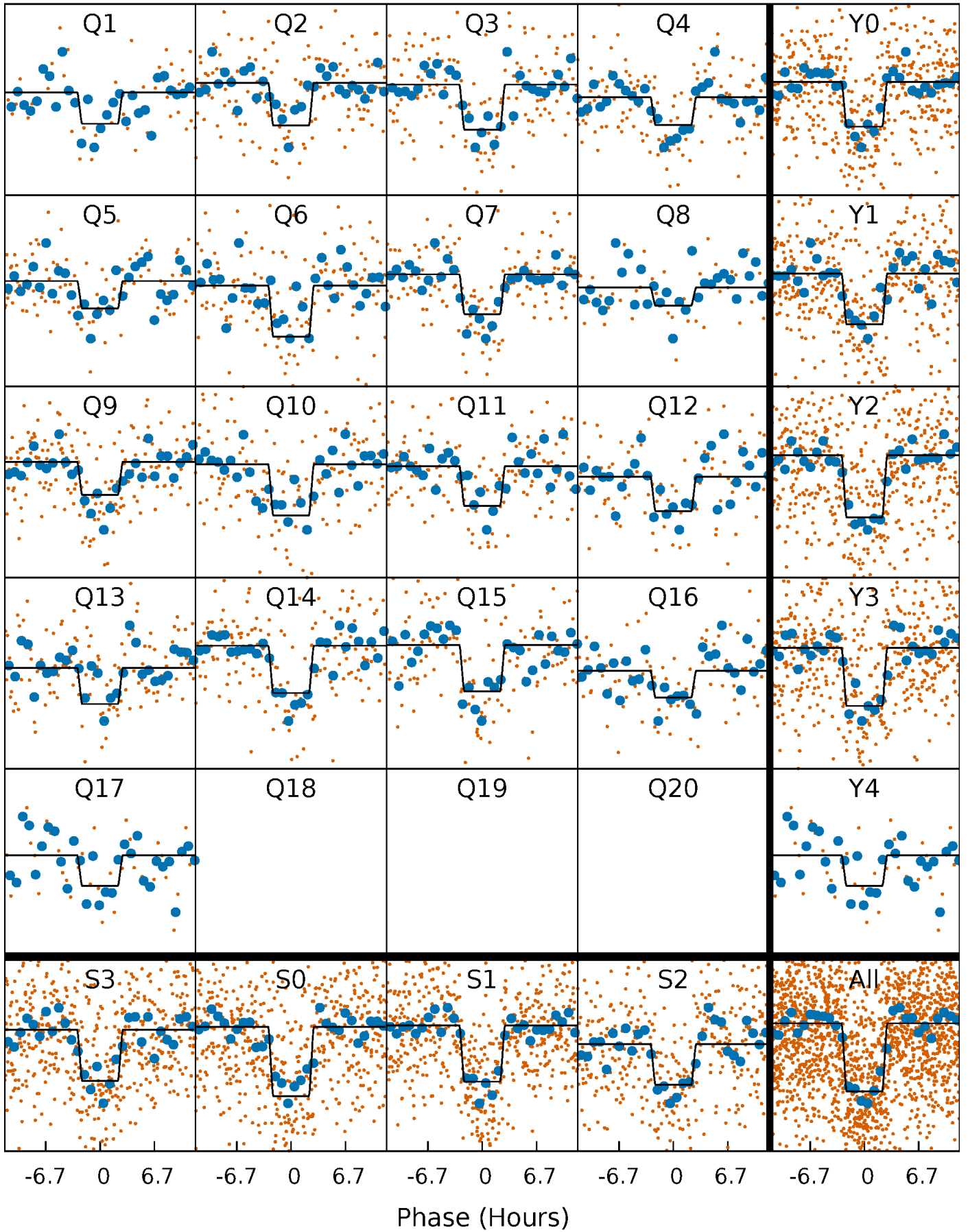
# DV Quarter-Phased Transit Curves

TCE 008561231-01 P= 28.685193 Days  $T_0=159.874342$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

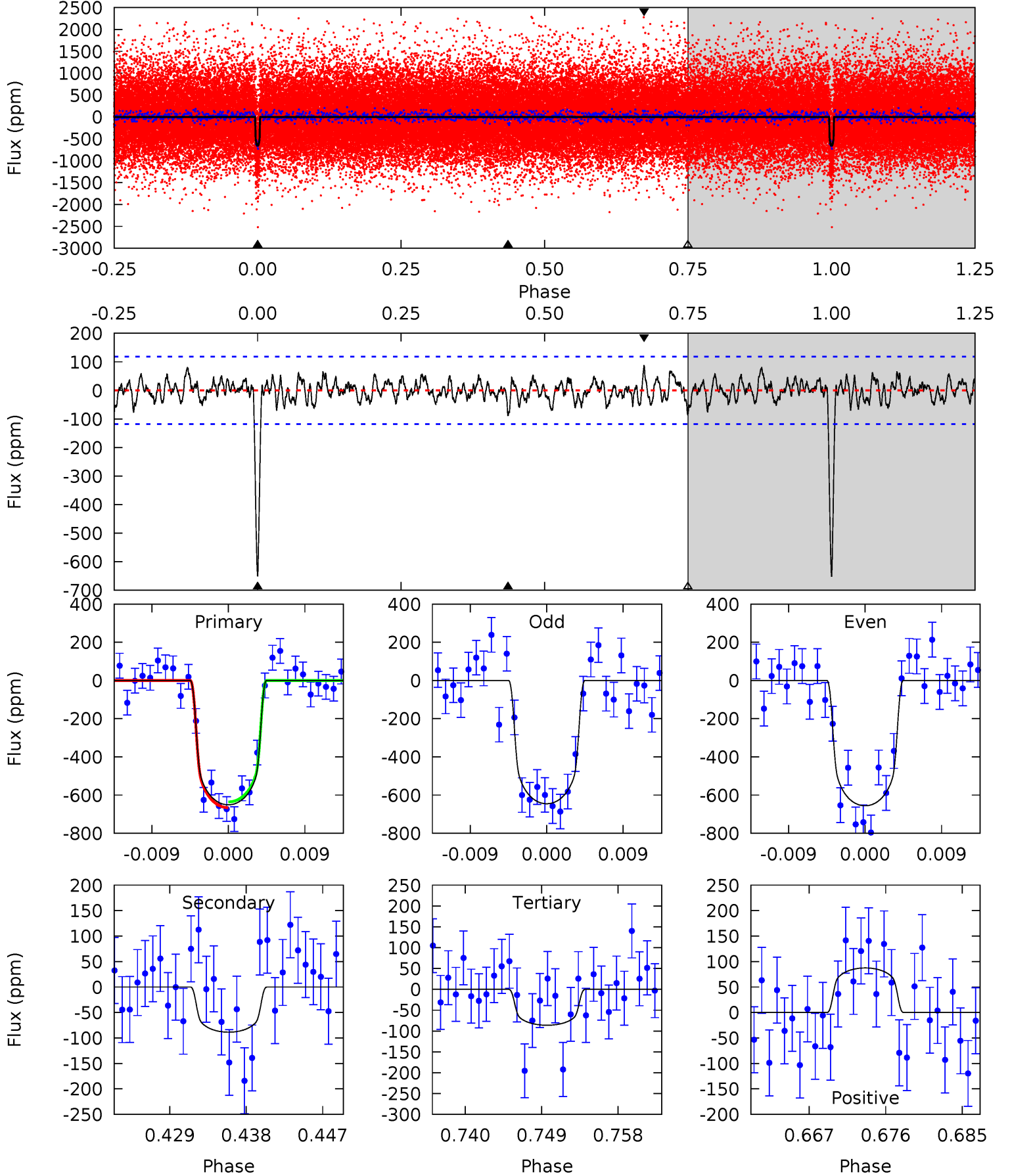
TCE 008561231-01 P= 28.685096 Days  $T_0=159.876552$  (BKJD)



# DV Model-Shift Uniqueness Test

008561231-01, P = 28.685193 Days, E = 131.189149 Days

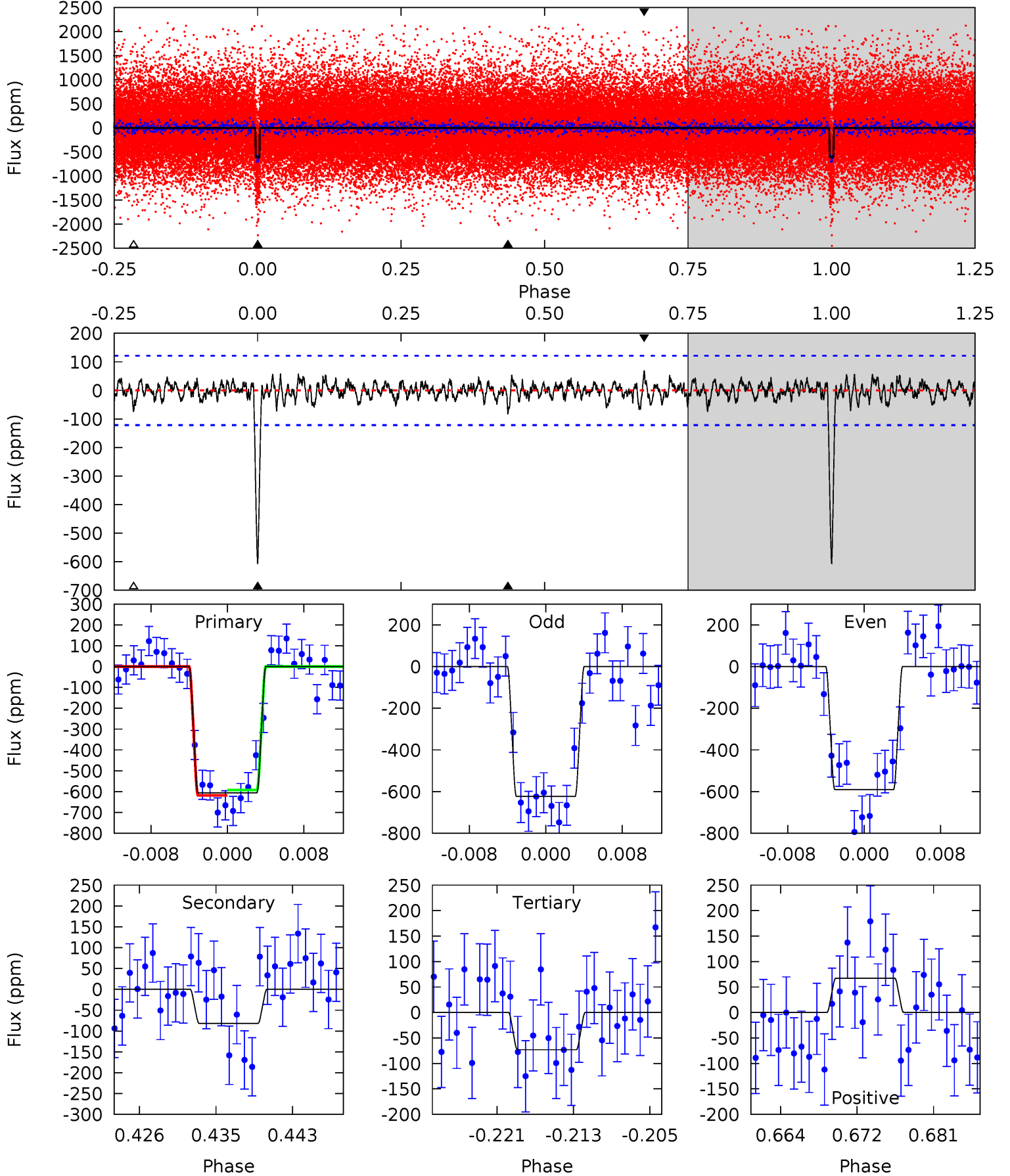
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.8	3.79	3.68	3.74	5.04	2.61	1.22	24.1	24.1	0.11	0.05	0.23	0.98	0.12	0.65



# Alt Model-Shift Uniqueness Test

008561231-01, P = 28.685096 Days, E = 131.191456 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.3	3.41	3.05	2.82	5.06	2.64	0.92	22.2	22.5	0.36	0.59	0.69	1.00	0.10	0.53



### Stellar Parameters For KIC 008561231

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5726^{+143}_{-172}$	$4.559^{+0.040}_{-0.160}$	$-0.180^{+0.300}_{-0.300}$	$0.838^{+0.197}_{-0.071}$	$0.930^{+0.090}_{-0.110}$	$2.221^{+0.469}_{-0.974}$
	+2%/-3%	+1%/-4%	+167%/-167%	+24%/-8%	+10%/-12%	+21%/-44%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 008561231-01 / KOI 2346.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-89 \pm 23$	$2.54^{+0.47}_{-0.44}$	$777^{+43}_{-31}$	$3784^{+282}_{-271}$	$237^{+129}_{-87}$
Alt.	$-82 \pm 24$	$2.33^{+0.48}_{-0.47}$	$774^{+48}_{-32}$	$3806^{+362}_{-267}$	$260^{+161}_{-109}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$



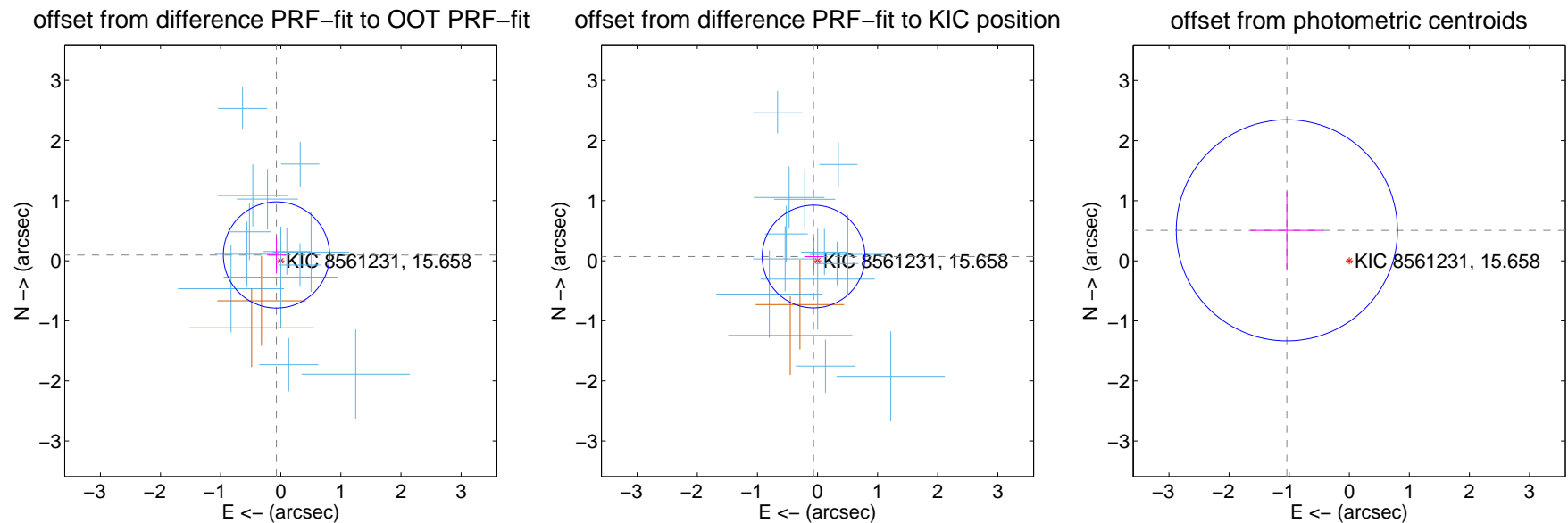
## DV Centroid Data

Supplemental centroid analysis for 008561231-01. Kepler magnitude: 15.66. Transit SNR 20.21

There are 13 quarters with good PRF difference image offsets

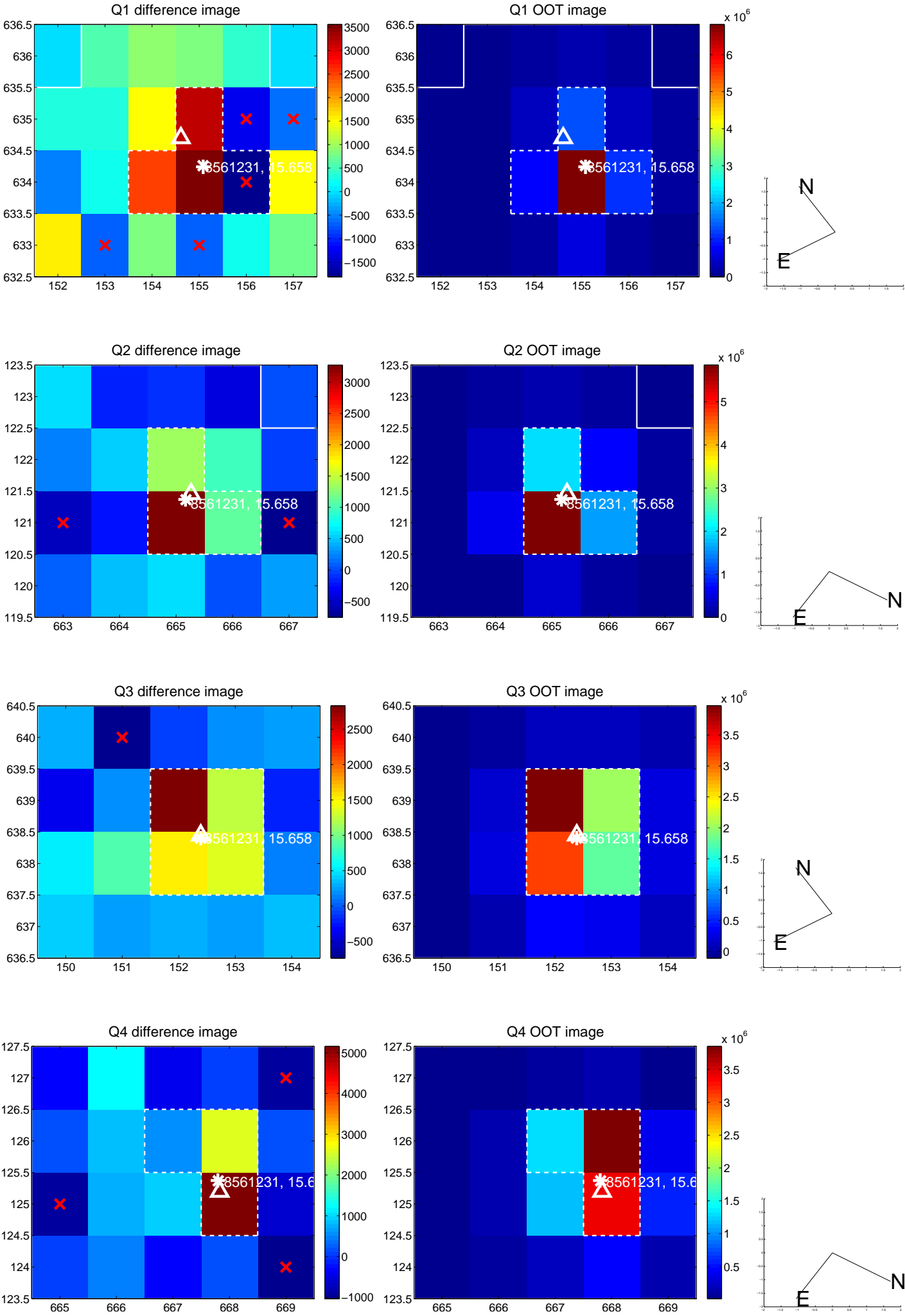
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.119 \pm 0.295$	0.40	$0.072 \pm 0.156$	$0.095 \pm 0.307$
PRF-fit source offset from KIC position	$0.095 \pm 0.285$	0.33	$0.065 \pm 0.155$	$0.070 \pm 0.312$
photometric centroid source offset	$1.16 \pm 0.61$	1.88	$1.04 \pm 0.61$	$0.51 \pm 0.64$

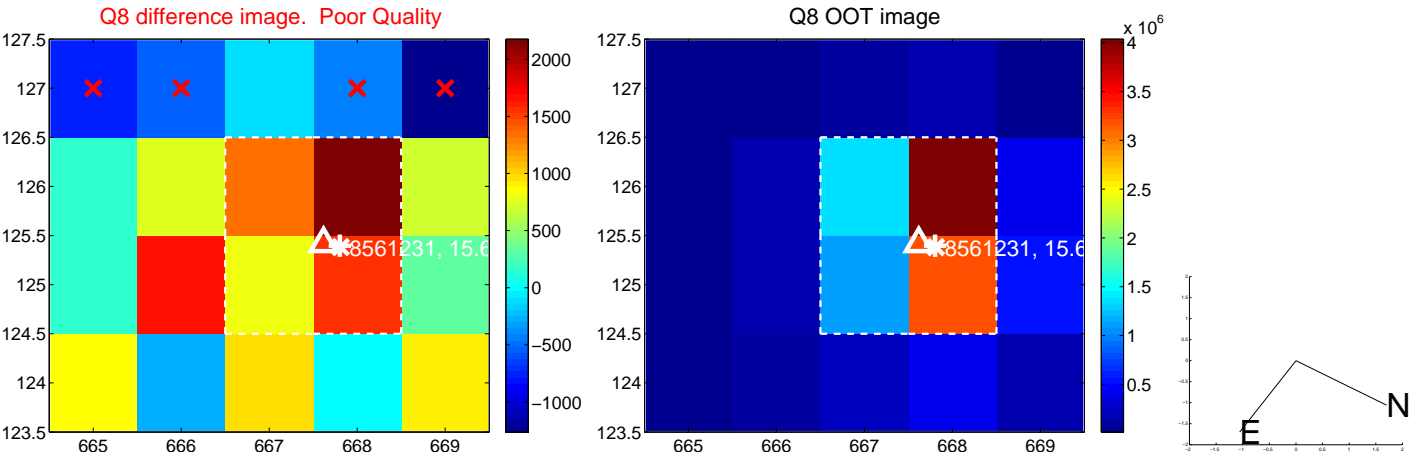
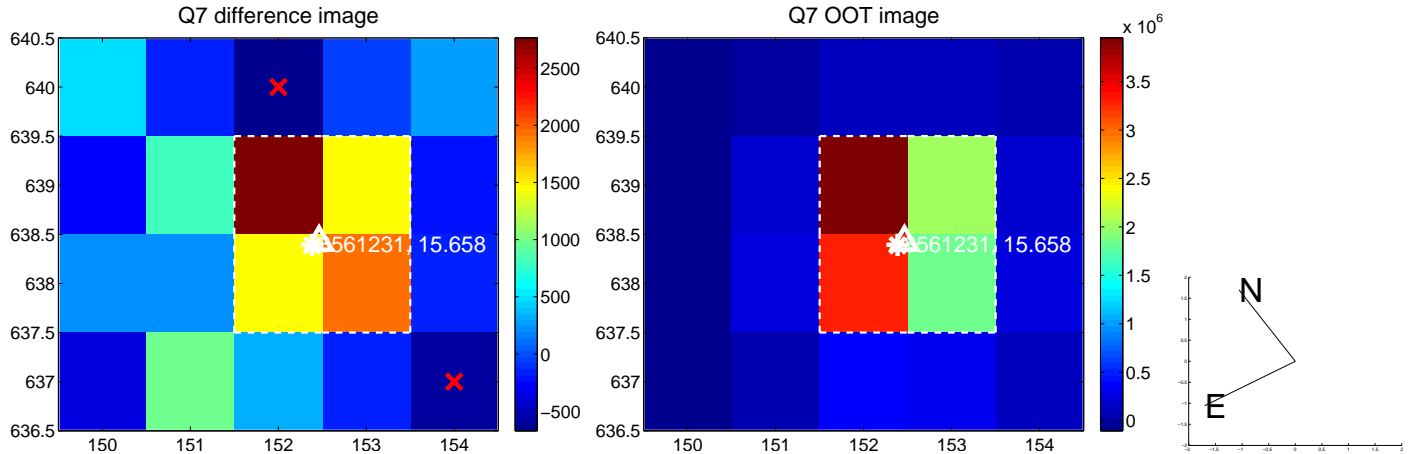
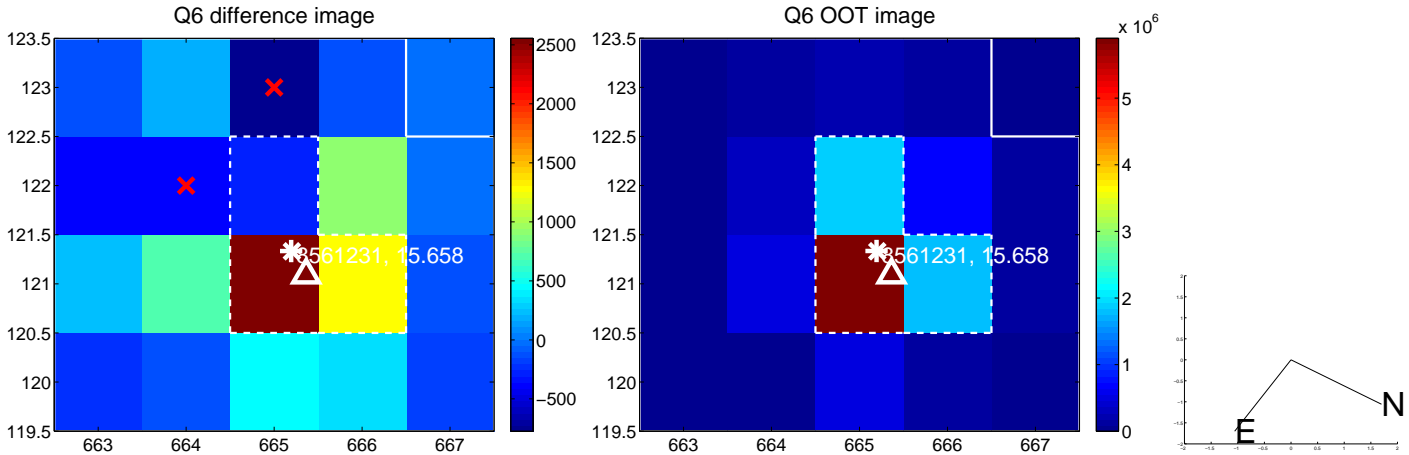
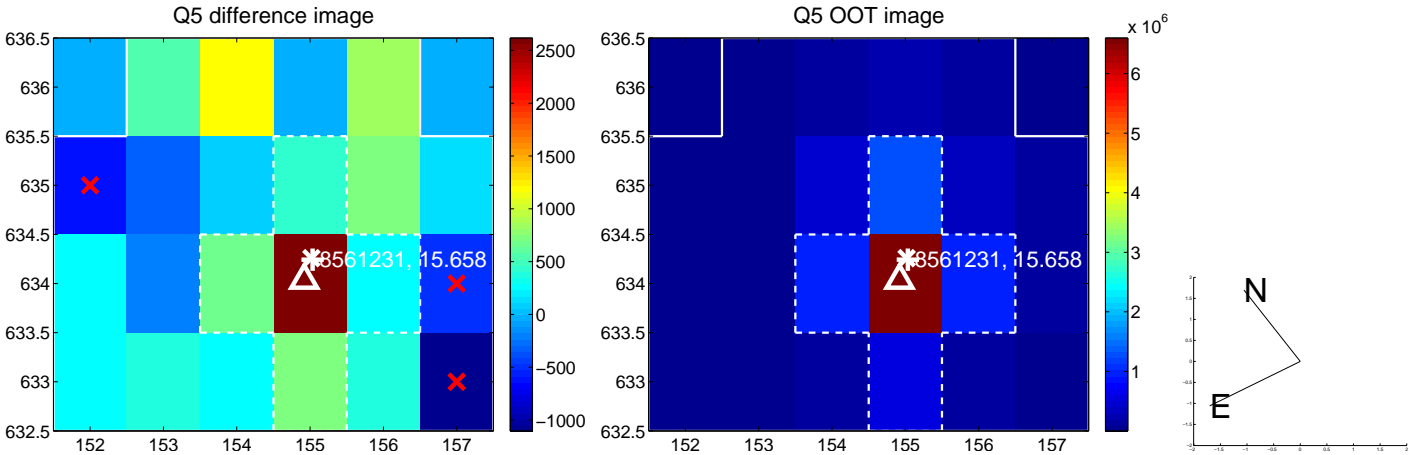


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

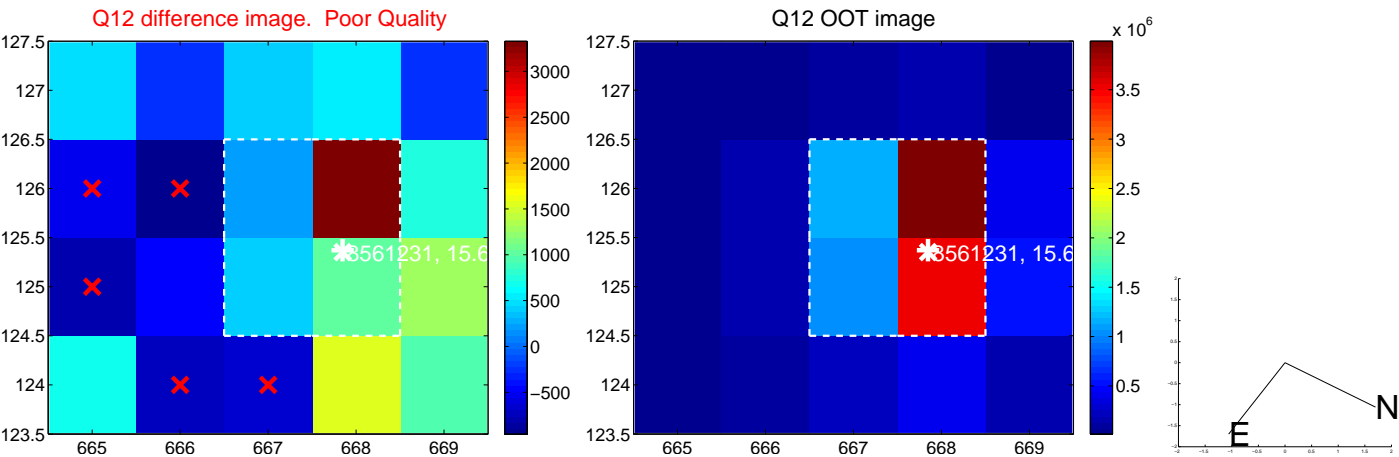
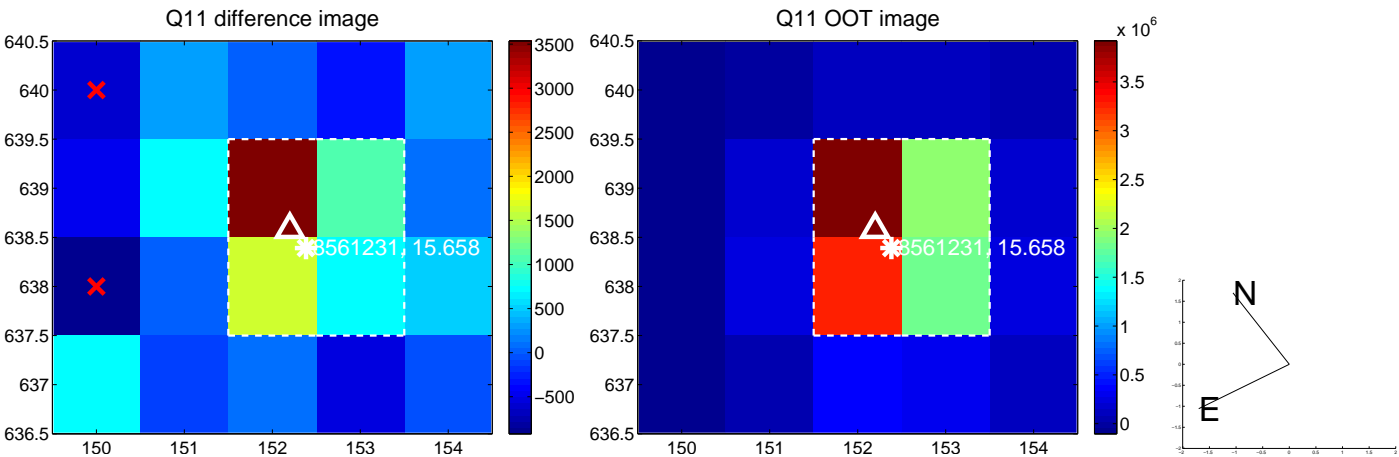
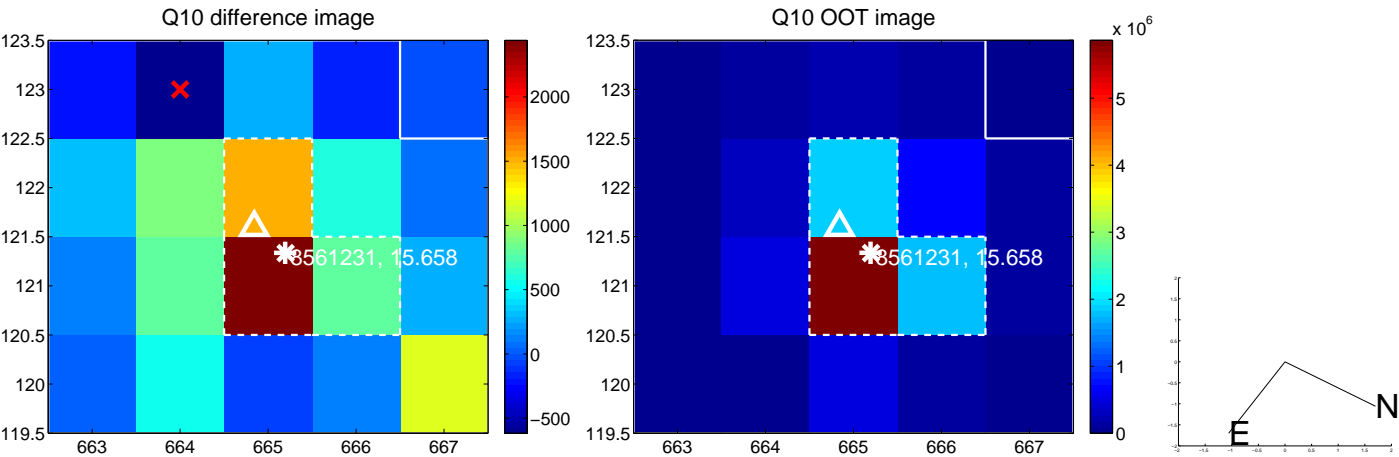
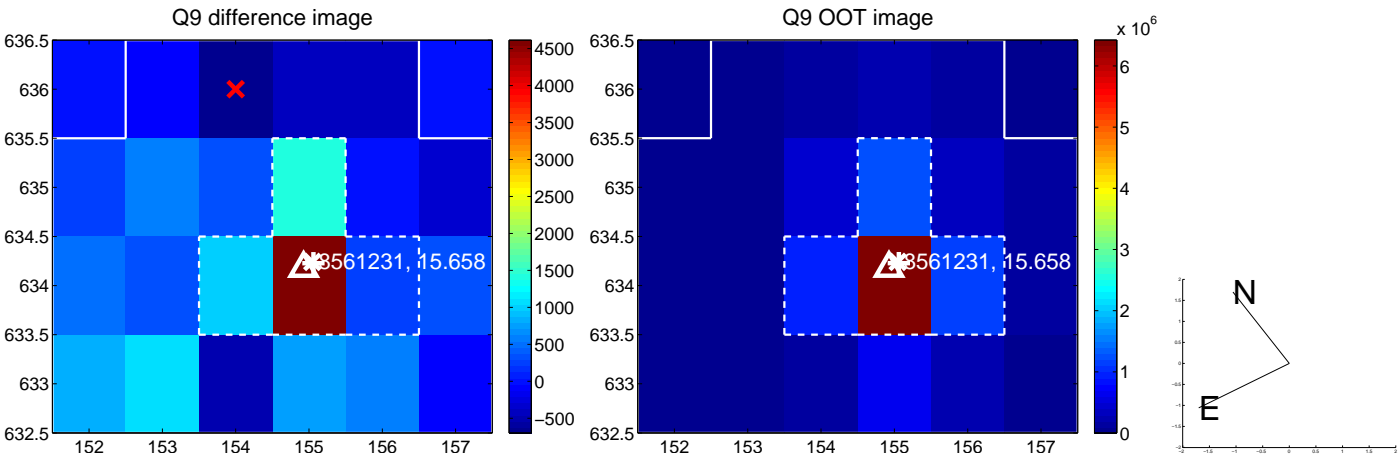
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



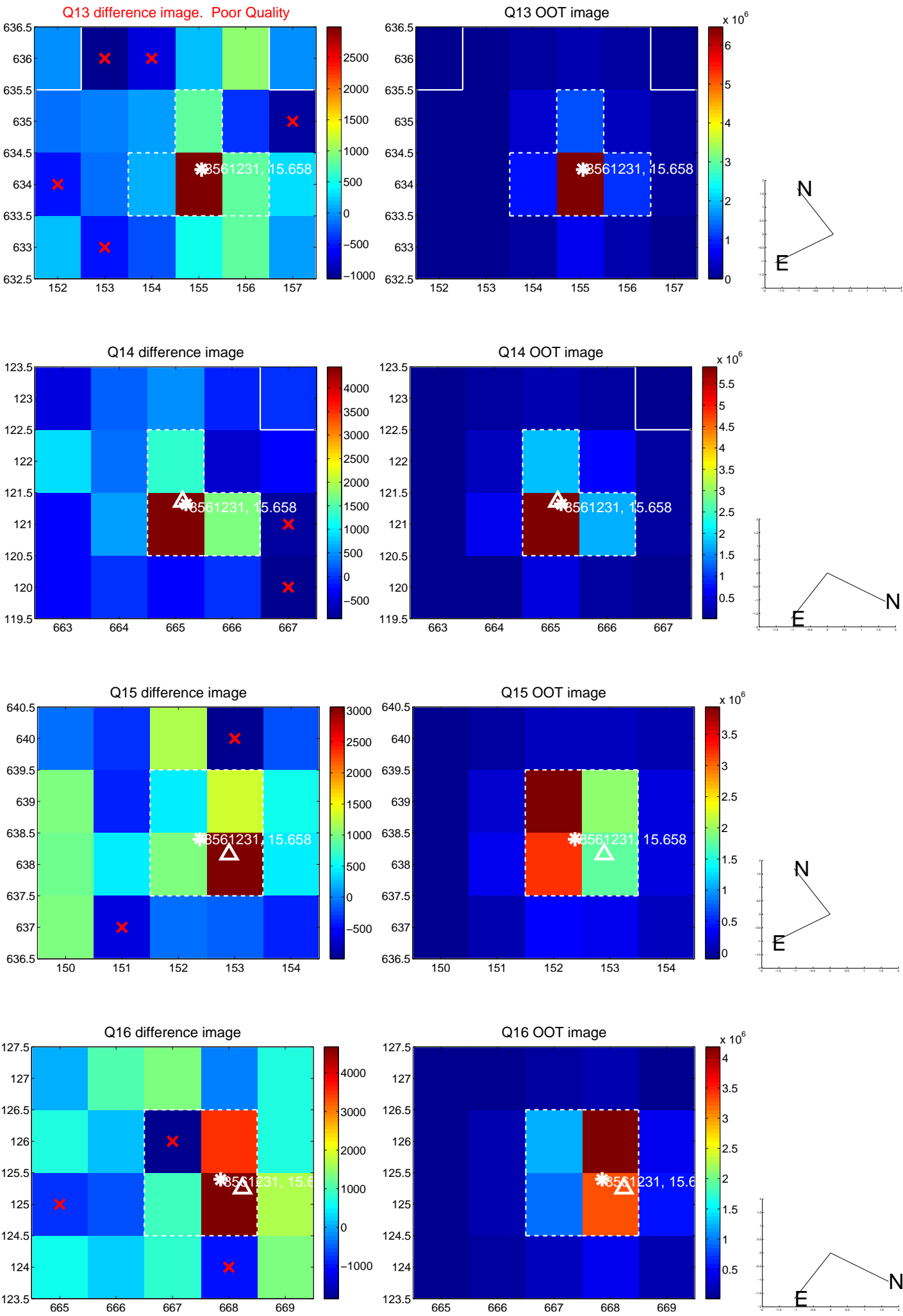
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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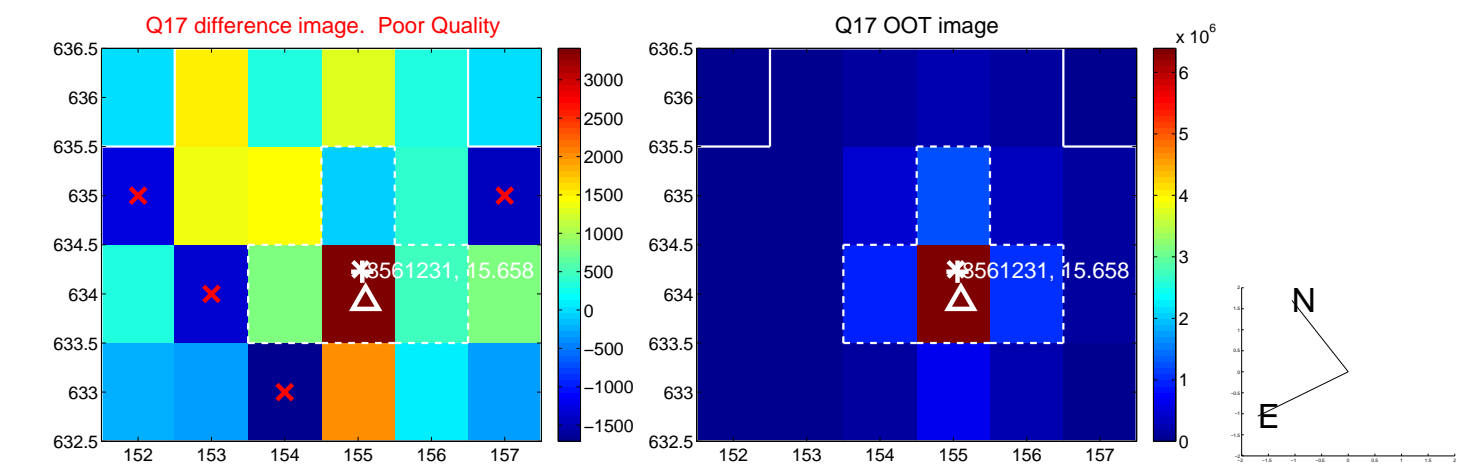


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

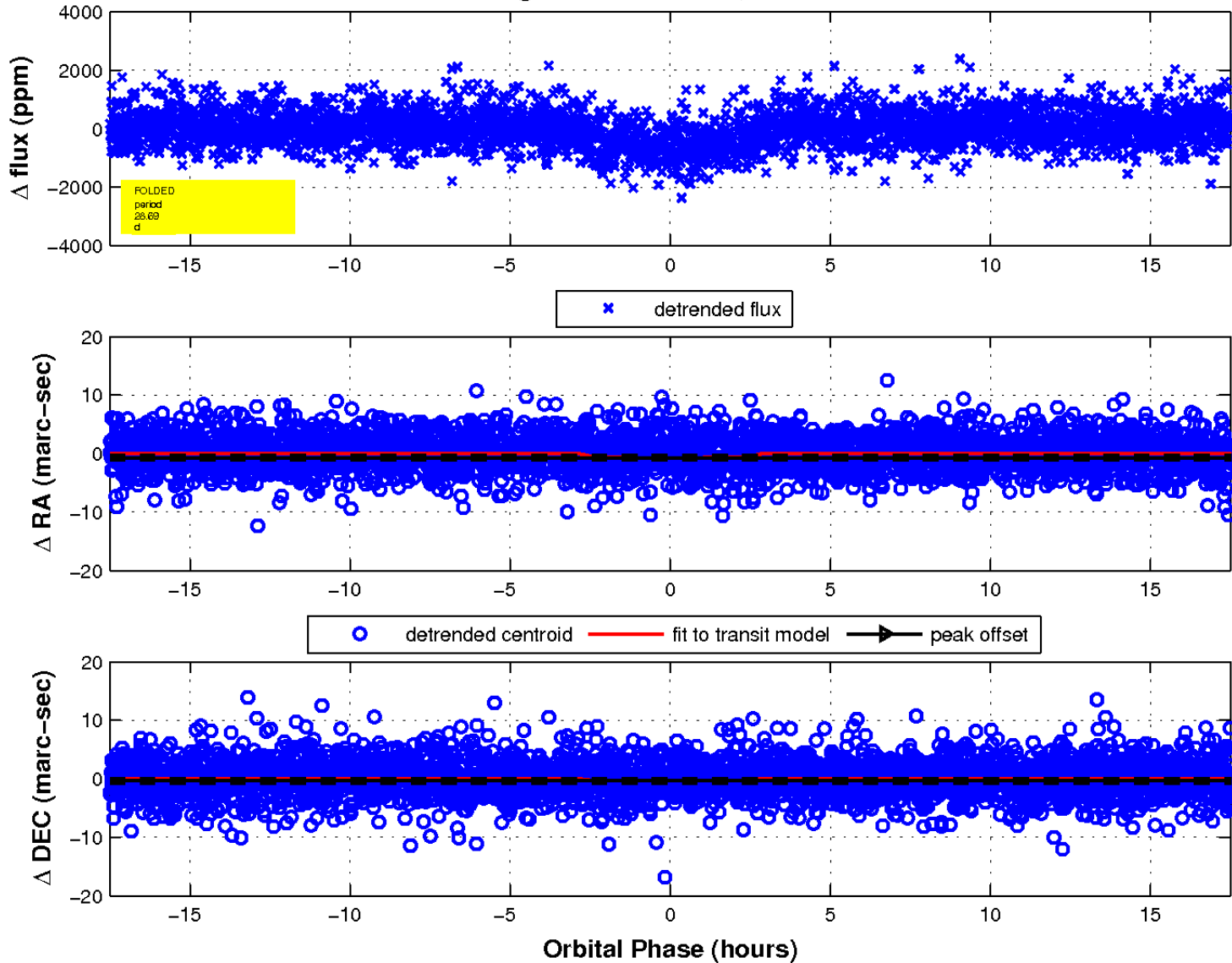




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

